

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-16. (Canceled)

51  
17. (Previously presented) A method of inducing uptake of a bacterial cell by an epithelial cell in a mammal, comprising increasing expression of the nucleic acid molecule of claim 46 or 52 in said bacterial cell and administering said bacterial cell to said mammal.

3 19  
5 2 18. (Original) The method of claim 17, wherein said bacterial cell is a *Salmonella* cell.

19-45. (Canceled)

3  
46. (Currently amended) An isolated and purified nucleic acid molecule ~~which~~ that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:1, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

1  
47. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:5.

2/ 48. (Previously presented) The isolated and purified nucleic acid molecule of claim 47/ comprising the nucleotide sequence of SEQ ID NO: 1.

4/ 49. (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims 46, 47, or 48.

5/ 50. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims 46, 47, or 48.

6/ 51. (Previously presented) A host cell comprising the vector of claim 49.

9/ 52. (Currently amended) An isolated and purified nucleic acid molecule ~~which~~ that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:2, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

7/ 53. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:6.

8/ 54. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising the nucleotide sequence of SEQ ID NO: 2.

10  
~~55.~~ (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims ~~52~~, ~~53~~, or ~~54~~.

11  
~~56.~~ (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims ~~52~~, ~~53~~, or ~~54~~.

12  
~~57.~~ (Previously presented) A host cell comprising the vector of claim ~~55~~.

15  
~~58.~~ (Currently amended) An isolated and purified nucleic acid molecule which that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:3, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length..

13  
~~59.~~ (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:7.

14  
~~60.~~ (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising the nucleotide sequence of SEQ ID NO: 3.

16  
~~61.~~ (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims ~~58~~, ~~59~~, or ~~60~~.

15 13 14

17  
62. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims ~~58~~, ~~59~~, or ~~60~~.

15 13 14 16  
18 63. (Previously presented) A host cell comprising the vector of claim ~~61~~.

21 64. (Currently amended) An isolated and purified nucleic acid molecule ~~which~~ that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:4, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

19 65. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:8.

20 66. (Previously presented) The isolated and purified nucleic acid molecule of claim ~~65~~ comprising the nucleotide sequence of SEQ ID NO:4.

22 67. (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims ~~64~~, ~~65~~, or ~~66~~.

21 19 20  
23 68. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims ~~64~~, ~~65~~, or ~~66~~.

21 19 20 22  
24 69. (Previously presented) A host cell comprising the vector of claim ~~67~~.

27  
70. (Currently amended) An isolated and purified nucleic acid molecule ~~which~~ that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:13, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

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71. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:14.

26  
72. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising the nucleotide sequence of SEQ ID NO: 13.

28  
73. (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims 70, 71, or 72.

27 25 26  
29  
74. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims 70, 71, or 72.

27 25 26 28  
30  
75. (Previously presented) A host cell comprising the vector of claim 73.

33  
76. (Currently amended) An isolated and purified nucleic acid molecule ~~which~~ that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:10, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

31  
77. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO: 12.

32  
78. (Previously presented) The isolated and purified nucleic acid molecule of claim 31 comprising the nucleotide sequence of SEQ ID NO: 10.

34  
79. (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims 76, 77, or 78.

33 31 32  
35  
80. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims 76, 77, or 78.

33 31 32  
36  
81. (Previously presented) A host cell comprising the vector of claim 79.

38  
82. (Currently amended) An isolated and purified nucleic acid molecule which that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived, and that hybridizes under conditions of hybridization in 50% formamide at 42°C and washing in 0.1 X SSC at 65°C

to a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO:15, and wherein the isolated and purified nucleic acid molecule is at least 50 nucleotides in length.

~~37~~ 83. (Currently amended) An isolated and purified nucleic acid molecule that is free of the nucleic acid sequences that flank the nucleic acid molecule in the naturally-occurring genome of the organism from which the nucleic acid molecule is derived comprising the nucleotide sequence of SEQ ID NO: 15.

~~39~~ 84. (Previously presented) A vector comprising the isolated and purified nucleic acid molecule of any of claims ~~82~~ or ~~83~~. ~~38~~ 37

~~40~~ 85. (Previously presented) A host cell comprising the isolated and purified nucleic acid molecule of any of claims ~~82~~ or ~~83~~. ~~38~~ 37

~~41~~ 86. (Previously presented) A host cell comprising the vector of claim ~~84~~. ~~39~~

~~42~~ 87. (Currently amended) An isolated and purified nucleic acid consisting essentially of SEQ ID NO:1.

~~43~~ 88. (Previously presented) The isolated and purified nucleic acid molecule of claim ~~52~~ or claim ~~53~~, wherein the polypeptide encoded by the nucleic acid molecule, can induce bacterial-mediated endocytosis (BME) when introduced into a bacterium that lacks a wild type SspC polypeptide. 9

~~44~~ 89. (Previously presented) The isolated and purified nucleic acid molecule of claim ~~58~~ or claim ~~59~~, wherein the polypeptide encoded by the nucleic acid molecule can induce bacterial-mediated endocytosis (BME) when introduced into a bacterium that lacks a wild type SspD polypeptide. 15

45  
90. (Currently amended) An isolated and purified nucleic acid molecule consisting essentially of SEQ ID NO:4.

46 91. (Previously presented) The isolated and purified nucleic acid molecule of claim 64 or 65, wherein the polypeptide encoded by the nucleic acid molecule can induce bacterial-mediated endocytosis (BME). 21

47 92. (Currently amended) An isolated and purified nucleic acid molecule consisting essentially of SEQ ID NO:10.

48 93. (Currently amended) An isolated and purified nucleic acid molecule consisting essentially of SEQ ID NO:2

49 94. (Currently amended) An isolated and purified nucleic acid molecule consisting essentially of SEQ ID NO:3.

50 95. (Currently amended) An isolated and purified nucleic acid molecule consisting essentially of SEQ ID NO:13.